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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/521,959	01/21/2005	Takahisa Sueoka	4633-0130PUS1	2131

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EXAMINER	
NALVEN, EMILY IRIS	
ART UNIT	PAPER NUMBER
3744	

NOTIFICATION DATE	DELIVERY MODE
10/22/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No.	Applicant(s)	
	10/521,959	SUEOKA ET AL.	
	Examiner	Art Unit	
	Emily I. Nalven	3744	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 January 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-17* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-17* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *21 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *1/21/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1-6, 8, 15 and 17** are rejected under 35 U.S.C. 102(b) as being anticipated by Yamamoto et. al. (US Patent No. 5,226,298).

In regard to claim 1, Yamamoto et. al. teach a dehumidification unit (see Fig. 1) comprising alternate laminations (see Fig. 1) of an adsorption element (12, 13) which supports an adsorbent and in which a plurality of first air ventilation (through element 13) passages through which air to be processed flows are formed planewise in rows (see Fig. 1), and a cooling element (11) in which a plurality of second air ventilation passages (see Fig. 1) through which cooling air flows are formed planewise in rows (see Fig. 1), wherein said cooling element (11) is provided at a planewise inner area thereof (see Fig. 1), with an opening thereby being shaped like a frame (see Fig. 1) and each of said air ventilation passages is divided by said opening into an entry opening (holes through 12, 13 on right hand and front side as seen in Fig. 1) and an exit opening (holes for air exiting from holes created by 12, 13) situated respectively on one passagewise side and on the other passagewise side thereof (see Fig. 1). It is interpreted that a frame means a perimeter or border.

In regard to claim 2, Yamamoto et. al. teach a dehumidification unit (see Fig. 1) comprising alternate lamination of an adsorption element (12, 13) (see Fig. 1) which supports an adsorbent (21) and in which a plurality of first air ventilation passages through which air to be processed flows are formed planewise in rows (see Fig. 1), and a cooling element (11) in which a plurality of second air ventilation passages through which cooling air flows are formed planewise in rows (see Fig. 1) wherein each of said second air ventilation passages of said cooling element (11) has an approximately rectangular cross-sectional shape (see Fig. 6). The cross-sectional shape as seen in Fig. 6 is approximately rectangular with one pair of parallel sides of the same length.

In regard to claim 3, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) wherein each of said air ventilation passages of said cooling element (11) has an approximately rectangular cross-sectional shape (see Fig. 6). The cross-sectional shape as seen in Fig. 6 is approximately rectangular with one pair of parallel sides of the same length.

In regard to claim 4, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) wherein each of said second air ventilation passages of said cooling element (11) has an approximately triangular cross-sectional shape (see Fig. 1).

In regard to claim 5, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) wherein air stream regulating means (13a) (see Fig. 4) configured to inhibit the flow of cooling air from deviating inside of said opening part (see Fig. 4) is

disposed in said opening of said cooling element (11) (passage holes made by space between 20 and 19 – see Fig. 2).

In regard to claim 6, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) further comprising flow rate regulating means (13a) (see Fig. 4) disposed on the side of said entry openings (front and right hand side, see Fig. 1) of said second air ventilation passages (holes through orifices made by element 12) (see Fig. 1).

In regard to claim 8, Yamamoto et. al. teach a dehumidification unit (see Fig. 1) comprising alternate laminations of an adsorption element (12, 13) which supports an adsorbent (20, 21) (col 4 lines 25-27 and lines 51-59) and in which a plurality of first air ventilation passages (through space between 20 and 19 – see Fig. 2) through which air to be processed flows are formed planewise in rows (see Fig. 1) and a cooling element (11) in which a plurality of second air ventilation passages (through 13) through which cooling air flows are formed planewise in rows (see Fig. 1) wherein, said cooling element (11) is provided with openings which overlap with said second air ventilation passages (see Fig. 1) such that said second air ventilation passages are each divided passagewise (see Fig. 1 – multiple rectangular tubes on multiple laminations). Overlap is interpreted to mean that the openings of the cooling element are at the same points as the openings of the second air ventilation passages on different lamina.

Yamamoto et. al. also teach the passage resistance of said second air ventilation passages (through 13) on the downstream side of said openings (to the left hand side and the back side, see Fig. 1) is set such that the passage resistance of second air ventilation passages (through 13) nearer to an area of said cooling element (11) corresponding to the upstream side of said first air ventilation passages (through space between 20 and 19 – see Fig. 2) of said adsorption element (12, 13) is greater than the passage resistance of second air ventilation passages (through 13) nearer to an area of said cooling element (11) corresponding to the downstream side of said first air ventilation passages (through space between 20 and 19 – see Fig. 2) of said adsorption element (12, 13). The first air ventilation passage resistance is greater than the second air ventilation passage because the size of the hole through which the air can flow is smaller (see Fig. 1).

In regard to claim 15, Yamamoto et. al. teach a dehumidification unit (see Fig. 1) comprising alternate laminations of an adsorption element (12, 13) (see Fig. 1) which supports an adsorbent (20, 21) (col 4 lines 25-27 and lines 51-59 and see Fig. 1) and in which a plurality of first air ventilation passages (through 13) (see Fig. 1) through which air to be processed flows are formed planewise in rows (see Fig. 1) and a cooling element (11) in which a plurality of second air ventilation passages (through 12) through which cooling air flows are formed in planewise rows (see Fig. 1) wherein said cooling element (11) is provided with openings which overlap with said second air ventilation passages (through 12)

(see Fig. 1) such that said second air ventilation passages (through 12) are each divided passagewise. Overlap is interpreted to mean that the openings of the cooling element are at the same points as the openings of the second air ventilation passages on different lamina.

Yamamoto et. al. also teach the passage direction of said second air ventilation passages (through 12) on the downstream side of the openings (see Fig. 1, left hand side or back side of dehumidifier element) as viewed in plane view is inclined so as to get closer to an area of said cooling element (11) corresponding to the downstream of said first air ventilation passages (through 13) of said adsorption element (20, 21) with approach towards the downstream side (see Fig. 1, left hand side or back side of dehumidifier element) (see Fig. 1).

In regard to claim 17, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) wherein a plurality of sets of said openings (see Fig. 1, right hand side or front side of dehumidifier element) and said second air ventilation passages (through 12) situation downstream from said openings (through the dehumidification unit) are provided in a back-and-forth arrangement relative to the flow direction of said cooling air in said cooling element (11) (see Fig. 1).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. **Claims 7, 9-12 and 16** are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et. al. (US Patent No. 5,226,298) in view of Iacollo (US Patent No. 5,547,019).

In regard to claim 7, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) wherein said flow regulating means (13a) is formed by setting the passage length of said entry openings (holes through 12 on right hand and front side as seen in Fig. 1) of said second air ventilation passages (through 12) to become the same nearer the downstream end of said first air ventilation passages (see Fig. 1 and Fig. 4) but doesn't explicitly teach they become shorter nearer the downstream end.

Iacollo teaches making different passage channels (see Fig. 2, panels forming different length passages in 154). It would have been obvious to one of ordinary skill in the art to make the air ventilation passages as taught by Yamamoto et. al. different lengths as taught by Iacollo because reducing the lengths of some of the air ventilation passages enables the device to use less material, which reduces overall cost while maintaining the same heat transfer and dehumidification capabilities. In addition making some passages shorter or longer than others does not structurally change the device and the applicant should not that a change in the shape of a prior art device is a design consideration within the skill of the art. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

In regard to claims 9-12, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) wherein the passage length of said second ventilation passages (through 13) on the downstream side of said opening is set such that the passage length of second air ventilation passages (through 13) nearer to said area corresponding to the upstream side (toward the right and foreground, see Fig. 1) of said first air ventilation passages (through space between 20 and 19 – see Fig. 2) of said adsorption element (12, 13) is the passage length of second air ventilation passages (through 13) nearer to said area corresponding to the downstream side of said first air ventilation passages (through space between 20 and 19 – see Fig. 2) of said adsorption element (12, 13) but doesn't explicitly teach the passage length differs between the first and second air ventilation passages.

Iacollo teaches making different passage lengths (see Fig. 2, panels forming different length passages in 154). It would have been obvious to one of ordinary skill in the art to make the air ventilation passages as taught by Yamamoto et. al. different lengths as taught by Iacollo because reducing the lengths of some of the air ventilation passages enables the device to use less material, which reduces overall cost while maintaining the same heat transfer and dehumidification capabilities. In addition making some passages shorter or longer than others does not structurally change the device and the applicant should not that a

change in the shape of a prior art device is a design consideration within the skill of the art. In re Dailey, 357 F.2d 669, 149 USPQ 47 (CCPA 1966).

In regard to claim 16, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) wherein the passage direction of said second air ventilation passages (through 12) on the downstream side (left hand or rear as viewed in Fig. 1) of said second air ventilation passages (through holes made by 12) on the downstream side of said openings (air entry hole openings made by 12) as viewed in plane view (see Fig. 1) is inclined so as to stay the same to said area of said cooling element (11) corresponding to the downstream side of said first air ventilation passages () of said adsorption element (12, 13 panels) with approach towards the downstream side (see Fig. 1) but don't explicitly teach that the two get closer.

Iacollo teaches making different passage lengths (see Fig. 2, panels forming different length passages in 154) thereby allowing two passages to get closer to each other as air flows from one end of the dehumidification device to the other. It would have been obvious to one of ordinary skill in the art to make the air ventilation passages as taught by Yamamoto et. al. different lengths in order to get the passages closer to each other and not entirely parallel as taught by Iacollo because not having all the passages parallel to each other allows the exit opening to be smaller or larger and allows the dehumidification unit to maintain or exceed its efficiency while fitting in given space constraints for the dehumidification unit.

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et. al. (US Patent No. 5,226,298) in view of Iacollo (US Patent No. 5,547,019) in further view of Hickley et. al. (US Patent No. 4,854,129).

In regard to claims 13-14, Yamamoto et. al. teach the dehumidification unit (see Fig. 1) wherein the passage cross-sectional area of said second air ventilation passages (through 13) on the downstream side (to the left hand or rear as seen in Fig. 1) of said openings is set such that the passage cross-sectional area of second air ventilation passages (through 13) nearer to said area corresponding to the upstream side of said first air ventilation passages of said adsorption element is the same passage cross-sectional area of second air ventilation passages (through 13) nearer to said area corresponding to the downstream side of said first air ventilation passages (through space between 20 and 19 – see Fig. 2) of said adsorption element (12, 13).

Hickley et. al. teach changing the cross sectional area of air ventilation passages in a dehumidification system (see Fig. 12 with the passage combination of 50 and 48). It would have been obvious to one of ordinary skill in the art at the time of the invention to change the passage cross-sectional area from one end of the passage to another as taught by Hickley et. al. in the dehumidification system as taught by Yamamoto et. al. because having a variable cross-sectional passage area enables the system to accommodate a larger influx of air or to out put a larger amount of air depending on the necessary conditions. Additionally, it can

help for space configurations and controlling the input/output of the directional air.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure

Kuma et. al. (US Patent No. 5,775,121) teach a multilamina absorbent.

Yano et. al. (US Patent No. 4,478,053) teach an air conditioning machine.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emily Iris Nalven whose telephone number is 571-272-3045. The examiner can normally be reached on Monday - Thursday 8 AM - 5:30 PM and on alternate Fridays 8 AM – 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisors, Cheryl J. Tyler can be reached on 571-272-4834 or Frantz Jules can be reached on 571-272-6681. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Emily Iris Nalven
Art Unit 3744
August 14, 2007